

<b>Ames Laboratory</b>	<b>Procedure</b>	10200.010
<b>Office:</b> Safety Review Committee	<b>Revision</b>	8
<b>Title:</b> Readiness Review	<b>Effective Date</b>	3/15/02
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## Readiness Review

This procedure shall be used to direct the Identification, Hazard Categorization, and Safety Readiness Review of activities. This procedure shall be utilized by Group/Section Leaders, Program Directors/Department Managers, the Environment, Safety, Health and Assurance (ESH&A) office, and the Safety Review Committee (SRC) for the review of all activities.

Comments and questions regarding this procedure should be directed to the contact persons listed below:

Name:	John M. Hayes	Tom E. Wessels
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This procedure has been reviewed by the Laboratory's Division Directors prior to receiving the Director's final approval signature.

## Sign-off Record:

**Reviewed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
Environment, Safety, Health and Assurance Office

**Reviewed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
Safety Review Committee, Chairperson

**Approved by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
Director

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## 1.0 Revision/Review Log

This document will be reviewed and revised as necessary, once every three years at a minimum.

<u>Revision Number</u>	<u>Effective Date</u>	<u>Contact Person</u>	<u>Pages Affected</u>	<u>Description of Revision</u>
0	5/01/93	T.E. Wessels	All	Initial Draft
1	2/01/94	T.A. Lograsso	All	Change in Procedure
2	10/31/94	T.A. Lograsso	All	Change in Procedure
3	10/1/96	T.A. Lograsso	All	Change in Procedure
4	7/1/97	T. A. Lograsso	3,6	Inclusion of Test Plan requirement
5	2/1/98	D. P. Baldwin	All	Consistency with ASR
6	12/1/98	D. P. Baldwin	All	Periodic review
7	02/01/00	J. M. Hayes	All	G:\DOCS&REC\DCP\Revision Descriptions\Proc102_010rev7
8	03/15/02	J. M. Hayes	All	G:\DOCS&REC\DCP\Revision Descriptions\Proc102_010rev8

## 2.0 Purpose and Scope

The procedure for Identification, Hazard Categorization, and Safety Readiness Review of Activities has been developed to ensure that an appropriate level of rigor, commensurate to the hazards associated with an activity, is applied to the activity's safety Review. This procedure shall be utilized by Group/Section Leaders, and Program Directors/Department Managers for all activities. The interaction of the Environment, Safety, Health and Assurance (ESH&A) office, Engineering Services, Facilities Services, Occupational Medicine, and the Safety Review Committee (SRC) in the review of activities is also directed by this procedure. All new or significantly modified activities must undergo review prior to commencement of the activity. All existing activities are subject to periodic review (at intervals not to exceed five years) to ensure that the activities are being performed within the authorized safety envelope.

## 3.0 Prerequisite Actions and Requirements

Annually, ESH&A shall send to Group/Section Leaders a list of current activities and scheduled review dates. Group/Section Leaders shall review this list to ensure that all activities have been authorized and that no significant modifications have occurred. Along with this list, the Group/Section Leader will be notified of the current SRC facilitator who is assigned to assist in the review process.

Group/Section Leaders are responsible for notifying the appropriate Safety Coordinators, Program Directors/Department Managers, and the ESH&A office of the proposed development of a new activity or proposed changes to an existing activity at the earliest possible point in the planning process. New or modified activities will undergo a two-phase review process. Developmental Approval authorizes the acquisition, fabrication, and testing of the activity.

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Operational Approval authorizes operation within the defined safety envelope.

For periodic review of existing activities, ESH&A will send written notification to the responsible Section or Group Leader indicating the need to submit the documentation for review. These notices will be sent out at least 2 months prior to the 5-year anniversary of the last completed review of the activity. Failure to respond to this notice or submit the Readiness Review documentation in a timely manner may result in a stop work order.

**Definitions:****Activity:**

One or several action(s), process(es), and/or piece(s) of equipment, coordinated to perform a task.

**Activity Supervisor:**

A person designated by the Group/Section Leader with responsibility for supervision and coordination of the development and/or operation of an activity.

**Group/Section Leader:**

A person who reports directly to a Program Director and has line management responsibility for space, equipment, activities, and employees. The Group/Section Leader is responsible for the delineation of activities.

**Developmental Review:**

The part of this procedure applicable to new or significantly modified activities and to activities, which have been halted due to a Stop Work Order. The developmental review may incorporate a site visit and submission of a Test Plan before Developmental Approval is given. During the developmental review, the lead specialist and the activity supervisor shall determine a mutually acceptable schedule for completion of the developmental phase and an approximate date for seeking final operational approval.

**Dormant Activity:**

An activity for which a Readiness Review has been postponed due to the temporary suspension of work in a particular area. These activities may be reactivated following completion of an Operational Readiness Review. Failure to reactivate a dormant activity before a second scheduled Readiness Review will result in the classification of this activity as discontinued.

**Discontinued Activity:**

An activity that is no longer performed by the responsible group or section. Reactivation of a discontinued activity requires a Developmental Readiness Review. Discontinued activities may require decommissioning that involves determination of the fate of chemicals, materials, and equipment used in the activity.

**ESH&A:**

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Environment, Safety, Health and Assurance office of the Ames Laboratory.

**ESH&A Lead Specialist:**

Staff member, with the ESH&A office, designated to lead the safety aspects of a Readiness Review.

**Hazard Management Statement:**

The Hazard Management Statement defines the extent of a hazard and the controls (administrative or engineered) utilized to minimize the risks associated with the hazard. The level of detail of the Hazard Management Statement shall be commensurate to the scope and magnitude of the hazard and the associated risk. Hazard Management shall be based on the hierarchy of 1) hazard elimination, 2) engineering controls, 3) administrative controls, and 4) personal protective equipment.

**New Activities:**

Activities undergoing initial startup. Also includes activities that are significantly altered so as to introduce new hazards or greater risks.

**Operational Review:**

The part of this procedure applicable to activities that have been previously reviewed or which have received Developmental Approval. The Operational Review may be restricted to a review of documentation relevant to Hazard Management, training and operating procedures. At the discretion of the Lead Specialist, the Operational Review may include a site visit.

**Safety Analysis Document:**

Safety Analysis Document is a report that systematically identifies the hazards of ESH&A Level III activities, describes and analyzes the adequacy of the measures taken to eliminate, control, or mitigate risks associated with the identified hazards, and analyzes and evaluates the potential for and the impact of potential accidents.

**Safety Coordinator:**

An individual designated by the Program Director/Manager to assist with the implementation of safety-related procedures and to serve as a liaison between the Program Director and the Environment, Safety, Health and Assurance office.

**Significantly Modified Activity:**

An activity in which modification introduces new hazards or increases the risk of existing hazards. A new hazard usually means that an additional item(s) on the Hazard Identification Checklist is checked. Most often, an increase in risk will also result in checking a new entry. However, if no new blocks are checked but the risk is increased, a Developmental Readiness Review shall be conducted. An increased risk involves work that exceeds the previously authorized safety envelope. Examples of modifications that increase risk without introducing new hazards might be an increase in operating pressure for a high pressure apparatus, or an activity in which toxic or carcinogenic chemicals with different physical properties are used. Group/Section Leaders should consult with their

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SRC Facilitator if assistance is needed to determine if a risk is increased.

If modification of an activity results in significant reduction of hazards, the Group/Section Leader may request review of the Hazard Level Classification by the appropriate Lead Specialist. Concurrence of the SRC shall be required for all such reclassifications.

**SRC:**

Safety Review Committee: The membership of the SRC is described in its charter.

**SRC Facilitator:**

A member of the Safety Review Committee who is appointed to assist and guide the Group/Section Leader through the Readiness Review process.

**Test Plan:**

A Test Plan prescribes the testing to be conducted during hazard mitigation and defines the timeline and anticipated date when the tests will be completed.

## 4.0 Performance

### 4.1 Identification of Activities

An activity is one or several action(s) or process(es) with or without associated equipment, coordinated to perform a task.

Group/Section Leaders are responsible for the delineation of activities. Generally, it is recommended that an activity be defined to cover classes of actions, processes and/or equipment when these actions have essentially the same potential hazards. An activity should be defined to include the potentially most hazardous conditions that could be encountered. This could eliminate the need for additional review when a change occurs in the character of the physical hazards, the chemicals used, and/or the waste generated.

Action(s), process(es), and/or equipment which have unique hazards (e.g. radiation, high toxicity, etc.) are best defined as separate activities. This will allow for the application of a graded approach to hazard management.

Ames Laboratory activities are classified as Laboratory/Industrial Type and Office Type. Examples of Laboratory/Industrial Type activities include: experimental research, applied research, production, maintenance, fabrication, construction, hazardous waste handling, and warehouse shipping and receiving activities. Examples of Office Type activities include: theoretical research, computational activities, design, and administrative activities.

Ames Laboratory funded activities that undergo a modification will be subject to a Developmental Readiness Review if the modification significantly alters the hazards associated

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with the activity or if the risk associated with a particular hazard is increased. Activities in which the hazards have changed may be identified by reviewing the Activity ESH&A Hazard Identification Checklist (Form 10200.003). An example where the risk associated with a hazard has increased is the scale-up of an activity where larger quantities or a different class of hazardous chemical are to be used.

#### **4.1.1 Off-Site Activities**

Ames Laboratory funded activities that are conducted entirely, or in part, in locations other than Ames Laboratory space or Ames Laboratory rented space may be subject to Readiness Review. Reviews of off-site activities will typically examine the experimental design or equipment and provide guidance for the safe operation of the activities. Particular areas of concern are, but are not limited to: Personnel Protection Equipment (PPE), baseline monitoring, equipment testing and certification, procedural reviews and reviews of host site procedures, if available and prudent. In some cases, on-site inspection may be necessary when risk of exposure to dangerous conditions may be present or when requested by the Group Leader. The cost of travel, associated with the off-site inspection will be the responsibility of the Group Leader. Ames Laboratory review of off-site activities does not replace the requirement to comply with review and safety requirements of institutions where off-site activity may occur.

Activities conducted in Iowa State University space (not Ames Laboratory rented space) are considered to be off-site. Readiness Review of these activities will be conducted jointly by ISU Environmental Health and Safety staff and the Ames Laboratory Review Team. Coordination of joint reviews will be the responsibility of the Lead Specialist.

#### **4.1.2 Non-Ames Laboratory Funded Activities**

Non-Ames Laboratory funded activities that are conducted entirely, or in part, in Ames Laboratory space or Ames Laboratory rented space are subject to Readiness Review. It is the responsibility of the Group Leader to identify these activities and submit the appropriate Readiness Review documentation.

### **4.2 Activity Hazard Levels**

All activities are categorized into one of three safety Hazard Levels. These levels are differentiated based on the magnitude (seriousness of potential harm) and scope (area of effect) of the hazard as well as the risk (realistic potential for the hazard to have an impact of a particular scope and magnitude) involved. The three levels are defined as:

#### **Hazard Level I:**

Activities with hazards similar to those encountered and/or accepted by the general public in an office environment. These hazards involve limited risk to (1) the health or safety of workers or the public, (2) the environment, or (3) the facilities or mission of the Laboratory. These hazards have minimal scope and magnitude.

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### **Hazard Level II:**

Activities with hazards similar to those encountered in a typical industrial/laboratory environment. These activities involve hazards whose scope may involve (1) significant risk to the health and safety of workers involved in the activity or those working within the surrounding area in which the activity is being performed, (2) short-term localized environmental impacts, or (3) minimal and localized damage to facilities or negative impacts on the performance of program or Laboratory functions.

### **Hazard Level III:**

Activities with hazards that involve a larger scope than impacts upon a single work site or laboratory area. These activities involve hazards whose scope may involve (1) significant risk to the health or safety of the public or on-site personnel who are not involved in the activity, (2) significant risk of widespread or lasting environmental effects, or (3) significant risk of damaging facilities or impeding the mission of the Laboratory.

## **4.3 Activity Hazard Level Categorization and Review**

The following sections should be utilized to direct the safety Hazard Level Categorization and Readiness Review of Office Type activities and Laboratory/Industrial Type activities. Forms required for Readiness Review may be obtained from the ESH&A office or from the ESH&A web site ([http://www.external.ameslab.gov/esh/ESH&A\\_Documents/formlist.html](http://www.external.ameslab.gov/esh/ESH&A_Documents/formlist.html)).

All Office Type activities are categorized as Hazard Level I, provided the activities meet the criteria described above. The categorization of Office Type Activities as Hazard Level I does not imply that there are no safety concerns regarding these activities. Group/Section Leaders are referred to ESH&A for additional guidance on the management of hazards associated with their Office Type activities. They may also consult with their SRC facilitator to determine if Readiness Review is appropriate.

### **4.3.1 Procedure Steps**

<b><u>Responsibility</u></b>	<b><u>Action</u></b>
<i>Group/Section Leader</i>	<ol style="list-style-type: none"> <li>1 For planned new or significantly modified activities, <b>consults with the SRC Facilitator</b> to determine if review is needed. For periodic reviews, receives notification from the ESH&amp;A office that review is pending. Notifies ESH&amp;A by memo if the activity is dormant or discontinued.</li> <li>2 Completes an Activity Hazard Identification Checklist (Form 10200.003) for each activity and reviews the Checklist with the appropriate Safety Coordinator or Safety Representative and obtains respective signatures. <ul style="list-style-type: none"> <li>• For each Laboratory/Industrial Type activity, prepares a</li> </ul> </li> </ol>

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brief Hazard Management Statement for each item checked on the Activity Hazard Identification Checklist (Form 10200.003). The statement shall define the extent of the hazard and the controls (administrative or engineered) utilized to minimize the risks associated with the hazard. The detail of the Hazard Management Statement shall be commensurate to the scope, magnitude, and risk associated with the hazard.

- For a previously reviewed activity, the hazard management statements only need to address significant changes in hazard management that have been initiated since a previous review. ESH&A maintains files containing documentation of previous reviews. This information is available to aid in the preparation of documentation for a Readiness Review.

3 Completes the Activity Identification Information section of the Readiness Review Form (Form 10200.004).

- The level of detail of the description of the activity should be determined by the complexity of the activity and the level of associated hazards.
- Previously reviewed activities may reference the existing documentation for a description of the activity.

4 Obtains Management approval of the activity on the Readiness Review Form (Form 10200.004).

- Group/Section Leader
- Program Director/Department Manager.

5 Sends the following to the ESH&A office:

- the Activity Hazard Identification Checklist (Form 10200.003);
- the Readiness Review Form (Form 10200.004);
- For Laboratory/Industrial Type activities, include a copy of the Hazard Management Statement for each hazard checked on the Activity Hazard Identification Checklist (Form 10200.003).
- A list of authorized users of the activity.
- Copies of written operating procedures for the activity.

*ESH&A office*

6 Checks completeness of Readiness Review Documentation

- For activities not previously reviewed, assigns an Activity Number ( YYYYYY.XXX ) which consists of the first five digits of the Management Code of the Group/Section Leader ( YYYYYY ) and a three digit series number.



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- For each activity, determines the appropriate SRC Facilitator and ES&H Lead Specialist.
- Routes a copy of the activity documentation, for review, to Facilities Services, Engineering Services and Occupational Medicine. These groups will review the documentation to determine whether the activity involves hazards that are relevant to their areas. If so, they will notify the Lead Specialist who may include them in the Review Team.

*ESH&A Lead Specialist*

- 7 Reviews the information provided by the Group/Section Leader and comments provided by Facilities Services, Engineering Services and Occupational Medicine.
- 8 Determines the hazard level for the activity if it has not been previously reviewed.
  - Activities designated Hazard Level I need not continue this review process.
  - For Level I and Level II activities, SRC concurrence with the hazard level designation is indicated by the initials of the SRC facilitator on the Readiness Review Approval form.
  - For modified activities, determines if only the new hazards require review or if full review of the activity is needed.
  - Activities designated as Hazard Level III will require the preparation of a Safety Analysis Document, if none was prepared during a previous review. A designation of Hazard Level III will be reviewed by the SRC to determine the propriety of this assignment, and to make the entire committee aware of the activity. If the SRC determines that the activity was incorrectly designated as Hazard Level III, this designation may be changed to Level II with the concurrence of the Lead Specialist. An activity designated as Hazard Level III shall require a more formalized and comprehensive review, as described in Steps 10-15.
- 9 For new or significantly modified activities, conducts developmental review.
  - Determines who should attend the Review Meeting (e.g., ESH&A Lead Specialist, Activity Supervisor, Group/Section Leader, Safety Coordinator, SRC Facilitator, additional ESH&A Specialists, Engineering Services Specialists, Facilities Services Specialists, Occupational Medicine Specialists).
  - A Test Plan must be submitted before Developmental Approval will be given. The Test Plan will prescribe the

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testing to be conducted during the developmental phase as well as define the timeline and anticipated date when the activity will become operational. The detail of the Test Plan shall be commensurate to the scope, magnitude, and risk associated with the hazard.

- Clearly states in writing to the Group/ Section Leader or designated Activity Supervisor any and all actions required before Developmental Approval can be granted.
- New or significantly modified activities designated as Hazard Level II proceed to Step 16. Previously reviewed Hazard Level II and III activities proceed to Step 21.

*Group/Section Leader*

- 10 Prepares a detailed Safety Analysis Document as described in Appendix A. Provides copies to the ESH&A Lead Specialist and the SRC.

*SRC*

- 11 Reviews Safety Analysis Document with input from the Director, the Lead Specialist, and other specialists as called for by the scope and magnitude of the hazard. Returns the Safety Analysis Document to the Group/Section Leader for corrections or amendments. This may be an iterative process.

- 12 Approves Safety Analysis Document.

- 13 Obtains approval of the Safety Analysis Document from the Ames Laboratory Director.

*ESH&A Manager*

- 14 Notifies Iowa State University Environmental Health and Safety Manager and DOE Field Office Operations Manager of Level III activity and forwards copies of the Safety Analysis Document. Other interested parties (determined by the Director) may be informed of the activity at this point.

- 15 After a 30 day comment period by the above parties, the ESH&A manager will notify the Group/Section Leader and ESH&A Lead Specialist in writing that they may proceed with the Readiness Review Procedure.

*Group/Section Leader*

- 16 Completes actions required by the ESH&A Lead Specialist and requests Developmental Approval.

*ESH&A Lead Specialist*

- 17 Documents Developmental Approval on the Readiness Review Approval Form (Form 10200.004), before acquisition, fabrication, and testing begin.

- 18 Clearly states in writing to the Activity Supervisor all actions

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and documentation required for Operational Approval.

*Group/Section Leader*

- 19 Completes actions and documentation as required by the ESH&A Specialist before Operational Approval.
- 20 Provides the ESH&A Lead Specialist with copies of all additional documentation and requests Operational Approval.

*ESH&A Lead Specialist*

- 21 Reviews the information provided by the Group/Section Leader.
- 22 Conducts Review.
  - Determines whether a Review Meeting and/or Inspection is required and who should attend (e.g., ESH&A Lead Specialist; Activity Supervisor; Group/Section Leader; Safety Coordinator; SRC Facilitator; and additional specialists from ESH&A, Engineering Services, Facilities Services, Occupational Medicine), and provides copies of all activity information to the specialists. Conducts a Review Meeting and Inspection, if necessary.
  - Clearly states in writing to the Group/Section Leader, with a copy to the SRC Facilitator, any and all actions required before approval can be granted.
  - If the review indicates no significant changes in the hazards associated with the activity and if the hazard management that is in place addresses all current requirements, the lead specialist will complete the Readiness Review form and recommend approval for the continued operation of the activity.
  - If the review indicates changes in the activity or in the hazard management procedures, and if the lead specialist and review team determine that these changes do not require convening a second review meeting, the lead specialist may recommend approval contingent upon receipt of written documentation of the changes from the activity supervisor. This documentation will be provided within a time period determined by the lead specialist. Upon receipt of this documentation, the lead specialist will complete the Readiness Review form and recommend approval for the continued operation of the activity.
  - If the review indicates the need for changes in equipment or procedures for hazard management, and these changes are determined by the review team to require additional review upon completion, the lead specialist may withhold a recommendation of approval of the activity until changes

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are made and a second meeting is held to review those changes. If the lead specialist determines that the situation poses no immediate hazard to personnel, the public, the environment, equipment, or the mission of the Laboratory, the activity may continue prior to completion of changes. Following the first meeting, the lead specialist will notify the activity supervisor in writing as to the corrections required to obtain approval. The activity supervisor will respond with a projected date for completion of these corrections and any written test plans required for these changes. Upon completion of these corrections, the activity supervisor will send the lead specialist a written request for another Activity Review meeting.

- If the review indicates significant immediate risk of injury to personnel or the public, harm to the environment, or damage to facilities or equipment due to improper implementation of hazard management, significant changes in the condition of equipment, significant changes in legally binding requirements since a prior review, or any other reason, the lead specialist will request that the Group Leader or section issue a stop work order for the activity. Should the situation warrant it, ESH&A will issue a stop work order for the activity. An activity that has resulted in a stop work order requires a full Developmental Readiness Review of the activity prior to resumption of work.

*ESH&A Lead Specialist*      23 Documents Operational Recommendation on the Readiness Review Approval Form (Form 10200.004). Forwards Readiness Review Approval Form (Form 10200.004) to the SRC.

*SRC Chairperson*      24 Documents Operational Approval, on the Readiness Review Approval Form (Form 10200.004), before operation. Sends a copy of the Readiness Review Approval Form (Form 10200.004) to the Group/Section Leader.

## 5.0 Post Performance Activity

The following documentation shall be filed with Environment, Safety, Health and Assurance upon completion of the Readiness Review:

- Original of the Activity Hazard Identification Checklist (Form 10200.003),
- Original of the Readiness Review Approval Form (Form 10200.004),
- Copy of the Hazard Management Statements,

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- Copy of the Safety Analysis Document (for Hazard Level III).
  - Activity associated procedures and additional documentation (if required),
  - Original of the Training Identification Form (Form 10200.127),
  - Original of the Personal Protective Equipment Needs Certification (Form 10200.095).

In addition, the following documentation shall be retained by the Group/Section Leader and shall be included in or referenced by Group/Section procedures.

- Original of the Hazard Management Statements,
- Original of the Safety Analysis Document (if required),
- Copy of the Activity Hazard Identification Checklist (Form 10200.003),
- Copy of the Readiness Review Approval Form (Form 10200.004),
- Activity associated procedures and additional documentation (if required).

## 6.0 Additional Information

Appendix A.	Guidelines for the Preparation of Safety Analysis Document for Hazard Level III Activities
Appendix B	Readiness Review Approval Form (Form 10200.004)

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## **Appendix A**

### **Guidelines for the Preparation of Safety Analysis Document for Hazard Level III Activities**

#### **Introduction**

Activities identified as Hazard Level III require a greater degree of formality in documenting the hazards of the activity and a higher level of rigor during the review of the activity. The purpose of the Safety Analysis Document is to systematically identify the hazards of Hazard Level III activities, to describe and analyze the adequacy of the measures taken to eliminate, control, or mitigate identified hazards, and to analyze and evaluate the impact of potential accidents.

#### **Safety Analysis**

The Group/Section Leader, with the assistance and input from the ESH&A Lead Specialist and Review Team members, will prepare a Safety Analysis Document that addresses the following topics in appropriate detail:

A. Introduction and General Description - This section should provide a brief description of the activity and discuss the requirements of the activity with respect to the objective and goals of the work.

B. Summary - This section briefly summarizes the hazards, control measures and impact of potential accidents that exists during the operation of the activity.

C. Site Description - This section will describe the building and laboratory requirements that are prescribed for the particular hazards involved. The section will also discuss the characteristics of the proposed laboratory space and compare those characteristics with the building requirements.

D. Activity Description - This section provides the following information:

1. General Activity Description.
2. Design criteria for systems, components and structures.
3. Normal and emergency operating procedures (in accordance with Writing Formal Procedures (Procedure 10200.001).
4. Operational limitations.
5. Passive Safety Equipment Requirements.

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6. Physical design features, engineering safety systems and administrative controls provided or to be provided to control, mitigate or eliminate the risks associated with the identified hazards.

7. Monitoring Systems.

8. Working Alone Procedures.

9. Training Requirements.

10. Log keeping.

E. Accident Analysis - Probability of occurrence and predicted consequences of hazards resulting from potential accidents, including those resulting from natural phenomena.

F. Emergency Planning Requirements - Determination of the impact of potential accidents on the Ames Laboratory Emergency Plan.

Upon completion, the Group/Section Leader will submit the Safety Analysis Document to the Safety Review Committee for review.